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| EXAMINER |
|---|
| GELIN, JEAN ALLAND |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2681 | |

DATE MAILED: 02/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/551,060 | UNDERBRINK, PAUL A. | |
| | Examiner | Art Unit | |
| | Jean A Gelin | 2681 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *18 April 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,13-15,17-19 and 21-26* is/are rejected.

7)☒ Claim(s) *7-12,16 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 April 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement (IDS) filed on March 04, 2002 has been considered and placed in the application file.

### *Specification*

2. The disclosure is objected to because of the following informalities: the claims must commence on separate sheet. Therefore, the phrase "Therefore, having thus described the invention, at least the following is claimed:" in page 11 should be deleted. The phrase "frequency divider 116" in page 5, line 11 should be --frequency synthesizer 116--. Appropriate correction is required.

### *Claim Objections*

3. Claims 7, 16, 26 are objected to because of the following informalities:

In claim 7, the word "it" in line 5 should be --control signal--.

In claim 16, the word "discreete" in line 6 should be --discrete--.

In claim 26, the word "resp9onse" in line 9 should be --response--.

In claim 8, lines 10-12 should be rewritten as follow: --a phase detector coupled to receive said system clock signal and said phase compensation output to output a signal proportional to the difference in phase between said system clock signal and said phase compensation output to control the controller oscillator--. Appropriate correction is required.

Claims 9-12 are also objected because they depend on 8 above.

### *Claim Rejections - 35 USC § 112*

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 20 recites the limitation "the common clock signal" in 4. There is insufficient antecedent basis for this limitation in the claim.

### *Claim Rejections - 35 USC § 102*

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

7. Claims 1, 2, 13, 14, 17, 19, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Horton et al. (Horton, US Pat. No. 6,041,222).

Regarding claim 1, Horton teaches a personal communications device (i.e., mobile terminal 150, fig. 3) comprising: a telecommunications unit (i.e., wireless

subsystem or wireless transceiver 152, col. 6, lines 13-16); a global positioning systems receiver (GPS receiver or subsystem 154, col. 6, lines 13-16); and a clock source (oscillator 161) for providing a clock signal to the global positioning receiver and the telecommunications unit (i.e., common oscillator for GPS receiver 154 and wireless transceiver 152, col. 7, lines 4-5, 31-36).

Regarding claim 2, Horton teaches the clock source (oscillator 161) provides a common clock signal to the global positioning receiver and the telecommunications unit (i.e., common oscillator for GPS receiver 154 and wireless transceiver 152, col. 7, lines 4-5, 31-36).

Regarding claim 13 (for purpose of rejection, item numbers of fig. 12 are maintained in fig. 17), Horton teaches clocking GPS receiver operations comprising the steps of receiving a clock signal from a clock source (i.e., GPS receiver receives clock signal from frequency synthesizer which includes frequency oscillator, see fig. 17); generating a control voltage for controlling the frequency of an oscillator signal generated by a voltage controlled oscillator based upon a feedback signal from a frequency synthesizer (corresponding to: frequency reference signal has been generated by the frequency synthesizer which control the VCO, col. 11, lines 30-33, and 54-65, see the feedback in fig. 17); and generating a system clock signal of a particular frequency in response to the control voltage (i.e., the output of VCO is a system clock).

Regarding claim 14, Horton teaches the clock source comprises a crystal oscillator of a telecommunication unit the clock source (i.e., oscillator) comprises a crystal oscillator (col. 8, lines 3-9).

Regarding claim 17, Horton teaches a personal communications device (i.e., mobile terminal 150, fig. 3) comprising: means for receiving a telecommunications unit (i.e., wireless subsystem or wireless transceiver 152, col. 6, lines 13-16); means for receiving a global positioning systems receiver (GPS receiver or subsystem 154, col. 6, lines 13-16); and means for generating a clock source signal (oscillator 161) to be provided to the means for receiving a global positioning receiver and means for receiving a telecommunications unit (i.e., oscillator 161 provides clock signal to GPS receiver 154 and wireless transceiver 152, col. 7, lines 4-5, 31-36).

Regarding claim 19 (for purpose of rejection, item numbers of fig. 12 are maintained in fig. 17), Horton teaches means for receiving a GPS receiver (170) comprises an oscillator (i.e., VCO 250) for generating a system clock signal (i.e., the system clock is the output of the VCO) based upon the clock source (190) (col. 11, lines 12-23), and a feedback loop for generating and providing a control signal to the oscillator (i.e., oscillator 250 received input signal form the synthesizer). Note that in the specification page 5, line 10, the system clock signal is defined as the output of the VCO, i.e., output of the VCO in the GPS receiver is equivalent to the claimed system clock.

Regarding claim 21, Horton teaches means for generating a clock source (i.e., oscillator) comprises a crystal oscillator (col. 8, lines 3-9) within the means for receiving a telecommunications signal (i.e. oscillator 161 is located in wireless transceiver 152, fig. 3, col. 7, lines 4-5).

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 22 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Krasner (US Pat. No. 5,841,396).

Regarding to claim 22, Krasner teaches a personal communications device (i.e., GPS mobile unit, figs. 1a-1c and 6) comprising: a telecommunications unit (i.e., wireless modem 22 or 602, col. 8, lines 5-7, col. 12, lines 45-47); a global positioning systems (GPS) receiver (fig. 6a-c) comprising a first antenna (613) for receiving GPS signals (col. 3, lines 2-3, col. 12, line 66 to col. 13, line 1); a downconverter (fig. 6a, 614) coupled to the first antenna, the first antenna providing the GPS signals to the downconverter (col. 3, lines 2-3, col. 13, lines 13-14); a local oscillator (612) coupled to the downconverter, the local oscillator providing a first reference signal to the downconverter to convert the GPS signals from a first frequency to a second frequency (col. 3, lines 3-5, col. 13, lines 10-11, col. 14, lines 17-24); a second antenna (601) for receiving a precision carrier frequency signal from a source providing the precision carrier frequency signal (col. 3, lines 5-8, col. 12, lines 42-45); an automatic frequency control (AFC) circuit coupled to the second antenna, the AFC circuit providing a second reference signal to the local oscillator to calibrate the first reference signal of the local oscillator, wherein the local oscillator is used to acquire the GPS signals (col. 3, lines 9-14, col. 12, line 46 to col. 13, line16), (see also col. 18, lines 8-26); and the local

oscillator signal is provided to the global positioning receiver and the telecommunications unit (see fig. 6a, col. 13, lines 15-25).

Regarding to claim 23, Krasner teaches a personal communications device (i.e., GPS mobile unit, figs. 1 and 6) comprising: a telecommunications unit (i.e., wireless modem 22 or 602, col. 8, lines 5-7, col. 12, lines 45-47); a global positioning systems (GPS) receiver (fig. 6a-c) comprising a first antenna for receiving GPS signals (col. 3, line 3, line 2, col. 12, line 66 to col. 13, line 1); a downconverter coupled to the first antenna, the first antenna providing the GPS signals to the downconverter (col. 3, lines 2-3, col. 13, lines 13-14), the downconverter having an input for receiving a local oscillator signal to convert the GPS signals from a first frequency to a second frequency (col. 3, lines 3-5, col. 13, lines 10-11, col. 14, lines 17-24); a second antenna for receiving a precision carrier frequency signal from a source providing the precision carrier frequency signal (col. 3, lines 5-8, col. 12, lines 42-45); an automatic frequency control (AFQ circuit coupled to the second antenna (col. 3, lines 5-8, col. 12, lines 46-48), the AFC circuit being coupled to the downconverter to provide the local oscillator signal which is used to acquire the GPS signals (col. 3, lines 9-14, col. 12, line 46 to col. 13, line 1), (see also col. 19, lines 36-50); and the local oscillator signal is provided to the global positioning receiver and the telecommunications unit (see fig. 6a, col. 13, lines 15-25).

10. Claim 24 is rejected under 35 U.S.C. 102(e) as being anticipated by Krasner (US Pat. No. 6,002,363).

Regarding claim 24, Krasner teaches a personal communications device (i.e., mobile unit 100, col. 3, line 42) comprising: a telecommunications unit (col. 3, lines 41-48); a GPS receiver comprising a GPS antenna for receiving data representative of GPS signals from at least one satellite (col. 1, lines 65-67, col. 4, lines 43-51); a digital processor coupled to the GPS antenna, the digital processor processing the data representative of GPS signals from at least one satellite (col. 1, line 65 to col. 2, line 4, col. 4, lines 22-27), including performing a matched filtering operation to determine a pseudorange based on the data representative of GPS signals (col. 12, lines 15-18), the digital processor also processing communication signals received through a communication link, the processing of communication signals comprising demodulation of communication signals sent to the GPS receiver (col. 2, lines 4-10) (see also col. 18, lines 33-45); a clock source (424) for providing a clock signal to the GPS receiver and the telecommunications unit (col. 14, lines 49-54).

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 3-6, 15, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horton et al. (Horton, US Pat. No. 6,041,222) in view of King (US Pat. No. 6,300,899).

Regarding claim 3, Horton teaches the telecommunications device (i.e., the terminal device 150 of fig. 1) comprises a based telecommunications unit (i.e., wireless transceiver 152).

Horton does not specifically teach the wireless transceiver is CDMA based telecommunication unit.

However, the telecommunications comprises a based telecommunications unit is very well known in the art of communications as evidenced by King. King teaches the combination of a CDMA radiotelephone and GPS receiver within a single unit, i.e., mobile unit (col. 5, lines 37-40), and the CDMA radiotelephone includes a GPS system time for synchronization (col. 3, lines 34-45). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to implement the CDMA radiotelephone taught by King within the system of Horton in order to transfer the system time into the CDMA radiotelephone and make it available to GPS receiver. Thus, the aiding information that is sent from the GPS central reference site is time synchronized with GPS time so that the same time reference is used at each end (col. 3, lines 40-45).

Regarding claim 4, Horton in view of King teaches all limitations above. Horton further teaches the telecommunications unit communications comprises the clock source (i.e. oscillator 161 is located in wireless transceiver 152, fig. 3, col. 7, lines 4-5).

Regarding claim 5, Horton in view of King teaches all limitations above. Horton further teaches the clock source (i.e., oscillator) comprises a crystal oscillator (col. 8, lines 3-9).

Regarding claim 6 (for purpose of rejection, item numbers of fig. 12 are maintained in fig. 17), Horton in view of King teaches all limitations above. Horton further teaches the GPS receiver (170) comprises a voltage controlled oscillator (i.e., VCO 250) for generating a system clock signal (i.e., the system clock is the output of the VCO) based upon the clock source (190) (col. 11, lines 12-23), and a feedback loop for controlling the voltage controlled oscillator (i.e., VCO 250 received input signal form the synthesizer). Note that in the specification page 5, line 10, the system clock signal is defined as the output of the VCO, i.e., output of the VCO in the GPS receiver is equivalent to the claimed system clock.

Regarding claims 15, 18, the limitation therein is the same as this discussed above with respect to claim 3, and hence is rejected for the same reason of obviousness given above.

13. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horton (US Pat. No. 6,041,222) in view of Krasner (US Pat. No. 5,841,396) further in view of Farrer et al. (Farrer, US Pat. No. 5,734,966).

Regarding claim 25, Horton teaches a personal communications device (i.e., wireless mobile terminal, shown at least in figs. 3-6) comprising: a telecommunications unit (e.g., wireless transceiver or communication subsystem 152) and GPS receiver 170 or GPS subsystem 154 (col. 2, lines 65-66); the local oscillator signal is provided to the global positioning receiver and the wireless transceiver (col. 7, lines34-49 and col. 7, line 62 to col. 8, line 3).

Horton does not specifically teach that the GPS receiver comprises a wireless transceiver.

However, the use of a wireless transceiver within a mobile GPS receiver is very well known in the art of communications, as evidenced by Krasner. Krasner teaches that the mobile GPS receiver comprises a modem 24, which is functionally equivalent to wireless transceiver, transmits and receives over wireless link to/from a basestation (col. 3, lines 34-36, fig. 1A, and col. 8, lines 5-13). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to implement the modem taught by Krasner within the system of Horton in order to receive almanac and other signal parameters from the base station to compute the receiver's position, and transmit the computed position to the basestation where the position of the mobile GPS receiver is calculated (col. 3, lines 15-27).

Horton in view of Krasner does not teach the specifics of the wireless transceiver as claimed.

However, the specifics of the wireless transceiver as claimed is very well known in the art of communications. Farrer teaches a frequency tolerant wireless transceiver to receive and transmit on the wireless signal energy on the same frequency and to automatically adjust to that frequency (col. 4, lines 11-18, and col. 15, lines 64-67), wherein the transceiver comprises: an antenna to receive a wireless data signal, including application data from one or more remote transceivers, at an actual frequency and issue this signal as a conducted radio frequency (RF) data signal and to transmit a wireless return signal at the actual frequency to the remote transceiver in response to a

conducted RF return signal (col. 7, lines 7, lines 3-17, and col. 16, lines 1-7); a synthesizer to generate a local oscillator (LO) signal sequentially in response to a first and a second frequency control signal, and to generate the RF return signal at the actual frequency in response to the second frequency control signal and having modulation in response to a digital return signal 27-38, and col. 16, lines 8-13; a direct conversion receiver to receive the LO signal to down convert the RF data signal to a baseband data signal (col. 7, lines 54-56 and col. 16, lines 14-16); a frequency discriminator to receive the baseband data signal, to provide a frequency difference signal for the current frequency difference between the expected frequency and the actual frequency (col. 7, lines 61-66), and to demodulate the baseband data signal, and to issue a demodulated data signal (col. 8, lines 4-8, and col. 16, lines 17-22); a microcontroller system having a receive adjust mode to provide the first frequency control signal predictive of an expected frequency and to receive the frequency difference signal, having a receive data mode to process the frequency difference signal, to provide the second frequency control signal predictive of the actual frequency, and to receive the demodulated data signal, including the application data, and to provide the digital return signal (col. 7, line 65 to col. 8, line 3, col. 10, lines 29-47 and col. 16, lines 22-31), (see also col. 15, line 64 to col. 16, line 50). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to implement the wireless transceiver taught by Farrer within the system of Horton and Krasner in order that the wireless transceiver transmits and receives at the same frequency, eliminating the need for two internal frequency sources or switching

frequencies in signal frequency source, thereby reducing the cost and power consumption in the wireless transceiver (col. 2, line 64 to col. 3, line 2).

Regarding to claim 26, all the limitations therein are the same as those discussed above with respect to claim 25, and hence are rejected for the same reasons of obviousness given above.

***Allowable Subject Matter***

14. Claims 7-12, 16, 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter:

As per claims 7-12, 20, the prior, Horton et al. (US Pat. No. 6,041,222) teaches the feedback loop comprises a frequency synthesizer, a phase comparator, and a loop filter.

On the other hand, the Applicant teaches wherein the feedback loop comprises a frequency synthesizer for producing a feedback signal, a phase comparator for generating a control signal in accordance with the feedback signal and the common clock source signal and a loop filter for processing the control signal and outputting the control signal to the voltage controlled oscillator. This limitation, in conjunction with all limitations of the independent and dependent claims, has not been disclosed, taught, or made obvious over the prior art of record.

As per claim 16, the prior art teaches the VCO of the GPS receiver receives a clock signal from a frequency synthesizer for clocking GPS receiver operations.

On the other hand, the Applicant teaches wherein the frequency synthesizer generates the feedback signal in accordance with the following steps: frequency dividing the system clock signal by at least two integer values to generates a fractional-N divider signal over a discrete time period; generating a variably delayed signal based upon the fractional-N divided signal, wherein the variable delay compensates for phase delays of the fractional-N divided signal within the discreet time period; and comparing the phase of the variably delayed signal and a reference signal and varying the system clock signal according to the difference. These limitations, in conjunction with all limitations of the independent claim, have not been disclosed, taught, or made obvious over the prior art of record.

***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bell, III et al. (6,088,348) teaches a dual and tri-band wireless communication using a single phase locked loop (PLL).

Durboraw, III et al. (US Pat. No. 5,119,504) teaches a subscriber unit for communicating with a satellite communication system.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean A Gelin whose telephone number is (703) 305-4847. The examiner can normally be reached on 9:00 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne Bost can be reached on (703) 305-4778. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

JEAN GELIN
PATENT EXAMINER

J.Gelin
January 30, 2003

Jean Alland Gelin